Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

TITLE V/PSD (DRAFT PERMIT) NO. V-04-012
Weyerhaeuser Company - Kentucky Mills
Hawesville, Hancock County, Kentucky 42348
SEPTEMBER 2, 2004
JAMES A. NEAL, REVIEWER
PLANT I.D. # 021-091- 00005
APPLICATION LOG # 51211/G424

TITLE V REVIEW

SOURCE DESCRIPTION:

The Weyerhaeuser Company - Kentucky Mills, formerly Willamette Industries, Hawesville Operations is an integrated pulp and paper mill utilizing the standard Kraft process for the manufacturing of bleached pulp from wood chips. The Kentucky Mills originally consisted of three areas: the Kentucky Medium Mill (KMM) (semi-chemical mill), the Bleach Pulp Mill (BPM) (Kraft mill), and the Fine Paper Mill (FPM) (specialty paper mill). However, on August 14, 2002 the Kentucky Medium Mill ceased operations and now the Hawesville Operations consist of only the Bleach Pulp Mill and Fine Paper Mill. On September 26, 2002, the Division received official notice of closure of the KMM. Further information was received January 2, 2003, regarding emission reductions due to closure of the KMM. Latest information regarding the Source was received October 6, 2003. The Kentucky Mills are located in Hawesville, Kentucky, in Hancock County on Kentucky Highway 1406. Table 1 identifies the facilities at these mills.

The standard Kraft process used at the Bleached Pulp Mill is described as follows:

Hardwood chips are used to produce virgin fiber as received at the Bleached Pulp Mill via truck and or railcar, then stored in piles. When chips are ready to be used, they are transported from the piles via conveyor for screening, where the oversized and small material is removed. The screened chip supply is then sent to a continuous digester in the pulp mill. The digester cooks the chips under elevated temperature and pressure in an alkaline solution of sodium sulfide and sodium hydroxide, referred to as "white liquor". During the cooking cycle, air trapped within the chips and gases formed during cooking are relieved continually. Uncondensed relief gases are cooled and incinerated. Upon completion of the cooking cycle in the continuous digester, the contents of the digester (consisting of the pulp and spent cooking liquor, or "black liquor") are transferred to a diffusion washer system, where the pulp temperature and pressure return to atmospheric levels. The gases leaving the diffusion washer and blow tank are collected and incinerated.

After washing, the pulp is then transferred to high density storage, while the brownstock washer filtrate ("weak black liquor") is sent to the recovery area. The pulp is bleached in two multistage bleach plants using chlorine dioxide, sodium hydroxide, hydrogen peroxide and oxygen as bleaching agents. The fully bleached pulp is stored in high density (thickened) storage vessels. From the bleached high density storage, the pulp is either processed into sheets which are dried, baled and sold as product (Market Pulp) or transferred to the Fine Paper Mill to be used in manufacturing fine paper products.

In the recovery area, the weak black liquor is transferred from storage tanks and is concentrated to approximately 75 to 80% solids in multiple effect evaporators. Any non-condensable gases (NCGs), which are released during this process, are incinerated in the NCG Incinerator at the site or in one of the two existing lime kilns. The foul condensate from the evaporators is steam stripped prior to its reuse. The NCGs from the stripper, referred to as stripper off-gases (SOGs), are also incinerated.

Once the concentration is complete, the "heavy" black liquor is combusted in two recovery boilers, which produce steam for the mill. The smelt produced from burning the black liquor flows from the boilers into two smelt dissolving tanks, where it is quenched with weak wash to form "green liquor", an aqueous solution of sodium carbonate and sodium sulfide. The green liquor is then transferred to a slaker, where calcium oxide is added to covert the sodium carbonate to sodium hydroxide. The resulting solution is an alkaline solution composed of white liquor and lime mud precipitate (calcium carbonate). The white liquor is then recycled back to the pulp mill area for cooking in the digesters. The lime mud precipitate is washed, dried, and then burned in a lime kiln at the mill to produce reburned lime (calcium oxide).

Pulp produced at the Bleached Pulp Mill is transferred to one of two paper machines where it is sometimes blended with purchased softwood pulp, depending upon grade requirements. Two paper machines produce various grades of fine paper. Refined pulp stock is mixed with machine white water and blended with additives added to produce specific paper grades. Various chemicals (including starch) and dyes are added to the paper to form different types of specialty papers. The stock mixture is then distributed on to the Fourdrinier fabric, where the paper sheet is formed. Steam dryers dry the paper and produce the final product.

Steam is supplied to the entire complex via No. 3 and No. 4 Recovery Boilers, two Power Boilers, the No. 2 Hogged Fuel Boiler and the BFB Boiler. Since the closure of the Medium Mill, the No. 2 Hogged Fuel Boiler burns only natural gas. The two power boilers and the No. 2 Hogged Fuel Boiler are backup or standby boilers which are used when the BFB Boiler is out of service. The BFB Boiler fires both wood waste and natural gas simultaneously.

Weyerhaeuser Company - Kentucky Mills has two wastewater treatment plants to treat the process water before discharge into the Ohio River. The treatment plants consist of primary clarifiers, polymer tanks, settling ponds, sludge ponds and aeration basins. One plant was used to treat effluent from the Kentucky Medium Mill, and the other one is still used to treat the combined effluent from the Bleached Pulp Mill and Fine Paper Mill. A sanitary sewage treatment plant for the entire complex utilizes the same outfall as the Bleached Pulp Mill/Fine Plant treatment plant.

Volatile Organic compound emissions at Unit #7, KMM No. 2 Waste Wood (natural gas fired) Boiler, 11 (C-50), has an allowable of 99 TPY which is based on an EPA approved accomodative SIP developed in 1980. The construction permit for this Boiler was issued April 3, 1980, Permit # C-80-024.

The Hawesville Operations were previously own by Willamette Industries, Inc., however on June 11, 2002 the Division received a name change application, Log # 54706. This application for change in ownership to Weyerhaeuser Company was combined with the Title V operating permit application, Log # 51211.

In a letter received June 27, 2002, the Division was notified that the PCC Plant - Lime Unloading and Process operations should be added as Insignificant Activities. Please refer to the Title V

operating permit. On October 21, 2002, the Division received notice regarding the sulfur dioxide limit for the Bi-Fuel Boiler, emission point 34, log number 55260.

Please note that some emission units have limits in parts per million (ppm) and compliance demonstration methods in pounds per hour (lbs/hr) or tons per year (TPY) or ton(s)/yr. Limits may often be expressed in ppm since continuous in-stack monitors are used as measuring instruments for these pollutants. The equations below may be used as conversions

ug/m^3 (pollutant concentration) = 26.626x10e+9 * [pollutant emission rate (lbs/hr)]/[stack gas flowrate (dry std ft^3/hr)]
ug/m^3 (pollutant concentration) = [ppm] * [pollutant molecular weight]/[0.02445]
ppm (pollutant concentration) = [ug/m^3] * 0.02445/[(pollutant molecular weight)]
gr/dscf (pollutant concentration) = 3.249 x 10e-4 * [ug/m^3]
lb(s)/hr (pollutant emission rate) = [ton(s)/yr(TPY)] * [2000 lbs/ton]/[operating hours/yr]
lb(s)/hr (pollutant emission rate) = [pollutant emission rate (lbs/yr)]/[operating hours/yr]
lb(s)/hr (pollutant emission rate) = 2.2527 x 10e-9 * [ug/m^3] * [stack gas flowrate (dry std ft^3/min)]

TABLE 1

WEYERHAEUSER COMPANY - KENTUCKY MILLS
HAWESVILLE OPERATIONS, HAWESVILLE, KENTUCKY

TABLE -1 EMISSION UNITS

PLANT ID.	FACILITY/EMISSION UNIT
01	KMM Digester System ----- Ceased Operation
02	KMM Brown Stock Washer System ----- Ceased Operation
03	KMM Evaporator System ----- Ceased Operation
04	KMM Paper Machine ----- Ceased Operation
05	KMM HD Storage Chest ----- Ceased Operation
06	KMM Package Boiler ----- Standby Boiler
07	No. 2 Hogged Fuel Boiler ----- Standby Boiler, Only Natural Gas Fired
08	KMM Wastewater Treatment
09	KMM Weak Liquor Tank ----- Ceased Operation
10	KMM Gasoline Storage Tank
11	Unpaved Roads
12	Paved Roads
14	Continuous Digester System
19	No. 2 Bleach Plant
20	No. 3 Bleach Plant
21	Chlorine Dioxide Generator
22	Multiple Effect Evaporators
23	BPM Liquor Storage Tanks
24	BPM Multipurpose Storage Tank
27	Recovery Boiler No. 3
28	Smelt Tank No. 3
29	Recovery Boiler No. 4
30	Smelt Tank No. 4
31	Causticizing Area
32	Slaker No. 2
33	Slaker No. 3
35	Lime Kiln No. 2
36	Lime Kiln No. 3
37	Lime Silo
38	Coke Silo
39	Green Liquor Clarifiers
40	NCG/SOG Incinerator
41	BPM Wastewater Treatment
42	BFB Boiler
43	Pulp Dryer System
44	Chip and Wood Fuel Unloading
45	Chip and Wood Fuel Handling
46	BPM Power Boiler
47	BPM Gasoline Storage Tank
48	Methanol Storage Tank
49	Brown Stock HD Storage
50	Bleached Pulp HD Storage
51	K-1 Paper Machine
52	K-2 Paper Machine
53	K-2 Stock Preparation
54	Starch Silos

COMMENTS:

Table 2, below, identifies the Mill, KYEIS emitting facility number, plant identification, facility name, pollutant, control device, and efficiency.

Table 2

Mill	EIS(Plant Id.), Facility	Pollutant	Control Device	Efficiency(%)
KMM	4(C-2),Digester, Blow Tank --- Ceased Operation	PM	Unit 7 - KMM No. 2 Waste Wood Boiler	>99
KMM	11(C-50), No. 2 Hogged Fuel Boiler--- Standby Only Natural Gas	PM SO2	Scrubber	>99
KMM	06 Package Boiler NG fired	PM SO2	None	None
BPM	38(B-1), Continuous Digester System	HAP(s)	LVHC: NCG/SOG Incinerator, or the No. 3 Lime Kiln HVLC: NCG/SOG Incinerator, or Bio-fuel Boiler (BFB)	>99 or to meet or exceed MACT requirements
BPM	16(B-100), No.2 ClO_2 Bleach Plant	HAP(s)	Bleach Plant Scrubber	>99 or to meet or exceed MACT requirements
BPM	16(B-100), No.3 ClO_2 Bleach Plant	HAP(s)	Bleach Plant Scrubber	>99 or to meet or exceed MACT requirements
BPM	15(B-100), Chlorine Dioxide Generator	HAP(s)	Bleach Plant Scrubber	>99 or to meet or exceed MACT requirements
BPM	39(B-300), Multiple Effect Evaporators (B-310), Condensate Stripper	HAP(s)	LVHC(s) and SOG(s): NCG/SOG Incinerator, or No. 3 Lime Kiln	>99 or to meet or exceed MACT requirements
BPM	(B-301, 303-309), 3 Recovery Area Tanks (Vented to the	HAP(s)	NCG/SOG Incinerator, or the Bio-fuel Boiler(BFB)	>99 or to meet or exceed MACT requirements
BPM	17(B-430), Recovery Boiler No. 3	HAP(s)/ PM	Electrostatic Precipitator	>99 or to meet or exceed MACT requirements
BPM	18(B-435), Smelt Tank No. 3	HAP(s)/ PM	Scrubber	>99 or to meet or exceed MACT requirements
BPM	28(B-440), Recovery Boiler No. 4	HAP(s)/ PM	Electrostatic Precipitator	>99 or to meet or exceed MACT requirements
BPM	29(B-445), Smelt Tank No. 4	HAP(s)/ PM	Scrubber	>99 or to meet or exceed

				MACT requirements
BPM	30(B-630), Lime Kiln No. 3	HAP(s)/ PM	Electrostatic Precipitator	>99 or to meet or exceed MACT requirements
BPM	33(B-700), NCG/SOG Incinerator	HAP(s)/ PM	Scrubber	>99 or to meet or exceed MACT requirements
BPM	34(B-900), BFB Boiler	PM	Electrostatic Precipitator	>99

In the past this pulp and paper mill was given two different identification numbers: 021-091-00002 and 021-091-00005, Kentucky Medium Mill (KMM) and Bleach Pulp Mill (BPM), respectively. For Title V operating permit purposes all mills and emission units have been combined into identification number 021-091-00005.

Storage tank emissions are based on the latest storage tanks programs developed by USEPA. Emission factors are based on AP-42, actual stack tests at the source, or a material balance. Emission factors for emission units subject to the BACT requirements pursuant to 401 KAR 51:017 have been established based on stack test.

The Title V permit application was received December 15, 1999, and was automatically logged complete July 18, 2000.

The most stringent requirement has been chosen between BACT and MACT standards, for example please refer to Lime Kiln #3. In this case, the more stringent for PM is the MACT standard. However, the BACT standard is also listed on the Title V operating permit since PM, PM10, and annual TPY are listed, and also until the MACT requirements become effective. This is also the case for the NCG/SOG Incinerator and the Biofuel Boiler.

The following Log numbers have been combined into this Title V operating permit: 51211/G424, 51240/G455), 52219, 52342, 52410, 52438, 52440, 53535, 51956, 5526, and 56273. Pursuant to Log # 56273 there will not be production process increases, and emissions of sulfur dioxide and TRS will not increase. The Mill will not implement an acid rain phase II program as submitted under log # 53535.

Unit 7 - KMM No. 2 Waste Wood Boiler, EIS # 011, lists a limit of 99 TPY for VOC emissions, at the time of PSD issuance for this facility, the Boiler was subject to the 1979 version of the PSD regulation, and the above limit was allowed for the Boiler.

This Title V operating permit includes a PSD review as discussed below:

PSD Review - Executive Summary

Please refer to the Title V discussion for the facilities that are in operation at the Weyerhaeuser Hawesville Operations.

On May 6, 1996, Willamette Industries (now Weyerhaeuser) was issued a federally enforceable PSD permit F-96-003 for construction of the following emissions units: Recovery Furnace #4, New Lime Kiln #3, Hog Fuel Boiler (BFB) #3, NCG/SOG Incinerator, Smelt Tank #4, and Steam Stripper for Multiple Effects Evaporators (MEE's). Please refer to Appendix A for this permit. A revision to the

above permit provided for the BACT (Best Available Control Technology) maximum allowable emissions limits for the NCG Incinerator emission rates to be specified in units of pounds per hour and tons per year.

Pursuant to General Condition 22 of the above PSD permit, stack tests were performed May 20, 1999, on the emissions units listed above. Under conditions of the PSD permit, it was determined that the NCG/SOG Incinerator could not meet the BACT nitrogen oxides and sulfur oxides requirements specified under Condition 3. The manufacturer, A. H Lundberg Associates, Incorporated, of the incinerator made refinements and adjustments. However, in a letter dated June 30, 1999, the Manufacturer indicated the NCG Incinerator installed by them was operating as designed and its emissions were at or below similar control equipment used at other Kraft pulp mills, and it was the manufacture's opinion that the permit limitations for nitrogen oxides and sulfur oxides were unachievable.

After review and analysis of the information for the NCG/SOG Incinerator, it was determined that information per the permit application had been based and processed on softwood pulp mills. Indications were and have since been verified that hardwoods contain significantly more nitrogen than softwoods. It seems that the NCG Incinerator could not compensate for the increased quantity of nitrogen in the hardwoods processed at Hawesville Operations.

After discussions with the Division on November 5, 1999, Willamette's management made the decision to submit a revised PSD construction permit application with revised, updated, and achievable emission limits for the NCG/SOG Incinerator. The application provided a new BACT analysis which established revised maximum allowable permit emission limits for PM/PM10, nitrogen oxides, and sulfur oxides. To avoid a PSD review of the PM/PM10 emission increases, Willamette (now Weyerhaeuser) will use allowable emissions limits from the previously permitted Hogged-fueled Boiler #3(Bio-boiler) and Lime Kiln #3 to contemporaneously net any PM/PM10 emission increases for the NCG Incinerator. This Title V/PSD permit will establish revised allowable emissions limits for the Hogged-fueled Boiler #3, Lime Kiln #3, and NCG Incinerator.

The revised PSD construction permit application was received December 27, 1999, and was automatically logged complete May 31, 2000.

The proposed modification will be subject to New Source Performance Standards (NSPS) for emissions of Particulate Matter (PM) and Total Reduced Sulfur (TRS), as specified by State Regulation 401 KAR 59:080, Standards of performance for Kraft pulp mills (40CFR60, Subpart BB). The proposed modification will also be subject to State Regulation 401 KAR 51:017, Prevention of Significant Deterioration (PSD) of Air Quality, for sulfur dioxide (SO2) and nitrogen oxides (NOx), since this project will be a major modification at the Kraft pulp plant with significant net emission increases of the aforementioned pollutants.
The following analyses are required by the PSD regulation for each pollutant for which the modification will result in a significant net emission increase.

1. A demonstration that Best Available Control Technology (BACT) will be employed for each pollutant.

2. Analysis of the Air Quality Impact of the proposed modifications regarding Ambient Air Quality Standards and PSD Increments.

3. Impact on Class II/I areas

4. Analysis of the effects of proposed modification on soils, vegetation, and visibility.

5. Analysis of the Air Quality Impact projected for the area due to generalized commercial, residential, and industrial growth, and other types of growth as a result of the proposed modification.

This review demonstrates that all applicable PSD requirements will be met and includes a draft permit, which demonstrates the enforceability of the applicable requirements.

I. Background

On May 6, 1996, Willamette (now Weyerhaeuser Company) was issued a revised federally enforceable permit F-96-003 for construction of the following emissions units: Recovery Furnace #4, New Lime Kiln #3, Hog Fuel Boiler #3, NCG Incinerator, Smelt Tank #4, and Steam Stripper for Multiple Effects Evaporators (MEE's). All emissions units were constructed and stack tested in the time period allocated per the above PSD construction permit. Stack tests, in accordance with approved methods, were required for PM/PM10, nitrogen oxides, and sulfur oxides per the respective emission unit to verify the respective limits of the PSD construction permit. All emissions from stack tests were below the specified BACT maximum allowable emission limit, except the NCG Incinerator with Low NOx burner identified as EIS 33(33). This emission unit could not meet the specified BACT limits for nitrogen and sulfur oxides. Multiple stack tests indicated that the nitrogen oxide emission rates were significantly above permitted limits.

After refinements and adjustments to the NCG Incinerator, the manufacturer, A. H Lundberg Associates, Incorporated, indicated in a letter dated June 30, 1999 that the incinerator installed by them was operating as designed and its emissions were at or below similar control equipment used at other Kraft pulp mills, and it was the manufacture's opinion that the permit limitations for nitrogen oxides and sulfur oxides were unachievable.

After review and analysis of the information for the NCG Incinerator, it was determined that information per the permit application had been based and processed on softwood pulp mills. Indications were and have since been verified that hardwoods contain significant more quantities of nitrogen then softwoods. It seems that the NCG Incinerator can not compensate for the increased quantities of nitrogen in the hardwoods processed at the Hawesville Operations.

After a meeting with the Division on November 5, 1999, Willamette management made the decision to submit a new PSD construction permit application with revised, updated, and achievable emission limits for the NCG Incinerator. The application included a revised BACT analysis which established revised maximum allowable permit emission limits for PM/PM10, nitrogen oxides, and sulfur oxides. Willamette proposed to use allowable emissions limits from the Hogged-fueled Boiler #3(Bio-boiler) and Lime Kiln #3 to contemporaneously net for the NCG/SOG Incinerator. Please refer to Table 4. This Title V/PSD permit establishes revised allowable emissions limits for the Hogged-fueled Boiler #3, Lime Kiln #3, and NCG/SOG Incinerator.

The NCG Incinerator was constructed to serve as an air pollution control device for sources of hydrogen sulfide/total reduced sulfur at the mill. It is equipped with a low nitrogen oxides burner and staged combustion to reduce emissions of nitrogen oxides. This type burner is an aid in reducing emissions of nitrogen oxides, but may not serve as an effective control device if higher then normal levels of nitrogen are present in the fuel. The NCG Incinerator is designed to operate at 1500

degrees F with a retention time in excess of 0.75 seconds, and it is equipped with a caustic scrubber to reduce the sulfur oxides. Air pollution control equipment associated with the respective emissions unit meets BACT requirements, and will be operated to maintain these requirements.

Weyerhaeuser's proposed modification for its existing Kraft pulp and paper mills in eastern Hancock County, Kentucky, will be subject to State Regulation 401 KAR 51:017, Prevention of significant deterioration(PSD) of air quality, because of the following:

1. Due to its "potential to emit", it is a "major stationary source" as defined under Section 1(1)(a)(1.) of the above PSD Regulation.

2. Hancock County is classified as "attainment" for PM/PM10, Nitrogen Oxides (NOx), and Sulfur Dioxide (SO2).

3. Pursuant to Section 22, of the above State PSD Regulation, the specified emission unit(s) will have "significant" increases for the criteria pollutants listed in Table 3.

Other Regulations that will be applicable to the proposed modification are: 401 KAR 52:020, Permits; 401 KAR 59:015, New indirect heat exchangers; and 401 KAR 60:005, Standards of performance for Kraft pulp mills. The last regulation, which incorporates Subpart BB of 40 CFR 60, specifies the new source performance standards (NSPS) for Kraft pulp and paper mills.

II. Information Given and Assumed

All information used in performing this review was derived from the application and assumptions listed therein. The writer cites independent assumptions made where applicable.

Table 3, NCG/SOG Incinerator Current, Proposed, and Significant Emission Limitations

Pollutant	Current Allowable (lbs/hr)	Proposed Allowable (lbs/hr)	Net Increase (lbs/hr)	Current Allowable (tons/yr)	Proposed Allowable (tons/yr)	Net Increase (TPY)	Significant Limit (TPY)
Particulate Matter/ PM10	1.8	12.8	11.0	7.88	56.06	48.18	25/15
Sulfur Dioxide (SO2)	0.397	3.29	2.893	1.74	14.42	12.68	40
Nitrogen Oxides (NOx)	9.13	19.13	10.00	39.99	83.79	43.8	40

Table 4 reflects the result of contemporaneous netting between the NCG/SOG Incinerator, Bio-Boiler, and Lime Kiln #3. These emission changes are incorporated into the Title V/PSD permit at the respective emission unit.

Table 4, Net Emission Increase for the NCG/SOG Incinerator

Emission Unit	PM/PM10	Nitrogen	Sulfur

	(TPY)	Oxides (TPY)	Dioxide (TPY)
NCG/SOG Incinerator	48.18	43.8	12.68
Bio-Boiler	-38.98	-43.81	n/a
Lime Kiln #3	-9.20	n/a	-12.68
NCG/SOG Incinerator Net Emission Increase	0.0	0.0	0.0

III. EMISSIONS ANALYSIS

Emission units at this source are identified under the Title V discussion. Emission rate calculations are identified in the write-up portion of the application package, which is referenced in the appendix of the PSD section. The applicant's consultant, Kenvirons Incorporated, performed the calculations unless otherwise stated herein. Emission rates reflect the air pollution control equipment identified under the Title V discussion for the respective emission unit.

IV. CONTROL TECHNOLOGY REVIEW

A Best Available Control Technology (BACT) analysis determines the control strategy required for a source undergoing a PSD review. BACT is determined on a case-by-case basis. During each BACT analysis, the reviewing authority evaluates the energy, environmental, and economic cost compared to the benefits from reduced emissions associated with alternative technologies. The "top down" approach is used to compare the control technologies. The reviewing authority then specifies an emissions limitation for the source that reflects the best degree of reduction achievable for each significant regulated pollutant.

Two pollutants previously underwent a BACT analysis during the 1995-1996 PSD review, and are currently undergoing this BACT review. These two pollutants were sulfur dioxide and nitrogen oxides.

USEPA maintains a computerized data base with listings of permitted BACT limits in the USEPA RACT/BACT/LAER CLEARINGHOUSE (RBLC Database), which resides on the USEPA's main air quality bulletin board system. This BACT data is submitted by state and local air pollution control agencies that have issued permits under regulations for BACT/RACT/LAER.

Following the listing and ranking of the control alternatives, selection and evaluation is made to determine the control level that provides the maximum level of control for the Total Reduced Sulfur (TRS) compounds generated during the pulping process. Considering the emission reduction, economic cost, and energy, the recommended control device is/was the NCG/SOG Incinerator. Table 5, Summary of RBLC database for BACT analysis of NCG/SOG controls, represents the information determined from the Clearinghouse review for control of non-condensable gases and stripper off-gases.

Table 5, Summary of RBLC database for BACT analysis of NCG/SOG controls

State	Date of Entry	Emission Limit Sulfur Dioxide	Emission Limit Nitrogen	Remarks

			Oxides	
CA	August 1994	12.3 (lbs/hr)	none	Incinerator with caustic scrubber
MS	Dec. 1996	3.1 (lbs/hr)	none	Incinerator with caustic scrubber
AL	May 1997	12.4 (lbs/hr)	155.0 (lbs/hr)	Incinerator in Natural Gas Power Boiler (no scrubber)
SC	Mar. 1998	6.0 (lbs/hr)	8.5 (lbs/hr)	Incinerator with caustic scrubber (hardwood)
KY*	May 1996	0.397 (lbs/hr)	9.13 (lbs/hr)	Incinerator with caustic scrubber (hardwood)

* These limits were established in the May 1996 PSD permit, but could not be met. The new proposed BACT emission limits are 9.13 lbs/hr for NOx and 3.29 lbs/hr for SO2.

BACT ANALYSIS FOR SULFUR DIOXIDE FOR THE NCG/SOG CONTROL SYSTEM

The NCG/SOG Incinerator with scrubber is permitted to control the off-gases from the pulping processes by oxidizing 99% of the TRS compounds to sulfur dioxide such that the outlet concentration of TRS compounds is than 5 ppm. Please refer to the control equipment table under the Title V discussion. Weyerhaeuser's proposed sulfur dioxide emission limit is 3.29 lbs/hr which is approximately the same as the lowest attainable emission rate shown in Table 5. Based upon this information and Division's BACT review of the information provided, Weyerhaeuser's choice of the incinerator followed by the scrubber is considered to represent BACT for sulfur dioxide.

BACT ANALYSIS FOR NITROGEN OXIDES FOR THE NCG/SOG CONTROL SYSTEM

At the 1996 PSD permit issuance date for the incinerator, nitrogen oxides emissions were not considered a problem. The National Council of The Paper Industry for Air and Stream Improvements, Incorporated (NCASI) did not review and analyze the problem until after 1996.

Based on the above Table, two nitrogen oxide sources have emissions of 155.0 and 8.5 lbs/hr, respectively. The lower emission limit, 8.5 lbs/hr, is based on a pulp/paper mill processing softwoods. Pulp/paper mills processing hardwoods may have higher emission of nitrogen oxides due to higher levels of nitrogen oxides and ammonia being generated by the pulping and stripping processes. This would lead to higher emission levels of nitrogen oxides and ammonia being emitted from the incinerator. However, through staged combustion, high levels of ammonia could serve as a reducing agent which would reduce the nitrogen oxide emissions. Under this scenario, Weyerhaeuser's proposed nitrogen oxides emission limit is 9.13 lbs/hr. Based upon this information and Division's BACT review of the information provided, Weyerhaeuser's choice of the incinerator followed by the scrubber is considered to represent BACT for nitrogen oxides.

No economic cost or energy analysis was performed since the highest efficiency control scenario (top down approach) was selected and is currently in place.

V. AIR QUALITY ANALYSIS

The most recent version of the Industrial Source Complex-Short Term (ISCST3) was used by the source to predict NAAQS concentrations and the amount of increment consumption for sulfur dioxide associated with the proposed modification and the total PSD increment consumption. Initial and refined modeling are based on five years (l990-l994) of meteorological data, with surface data for Evansville (# 93817), IN, and upper air data from Paducah (# 03816), KY. The grid spacing was 100 meters. Rural and Regulatory Default options were chosen. Downwash and terrain elevations

are accounted for the respective pollutant. The Division reviewed model results, and in some cases the results were randomly remodeled by the Division to verify impacts or increments.

Below are lists of sources/emission units that were involved in the modeling for this PSD permit.

ISCST SO2 Modeling Parameters

Source ID	Source Name	UTM Coordinates East (m)	UTM Coordinates West (m)	Emission Rate g/sec	Stack Height m	Stack Temperature K	Stack Gas Velocity m/s	Stack Diameter m
WILHFB1	Weyerhaeuser Hogged Fuel Boiler No. 1**	527077.1	4193884.9	0.00	43.3	341	13.7	2.1
WILHFB2	Weyerhaeuser Hogged Fuel Boiler No. 2*	527091.9	4193884.9	15.88	43.3	341	13.7	2.1
WILNCG	Weyerhaeuser NCG Incinerator*	527566.7	4193942.2	0.42	30.5	355	8.1	1.2
WILLK3	Weyerhaeuser Lime Kiln No. 3*	527552.8	4194063.6	3.91	45.7	348	10.9	1.83
WILLK2	Weyerhaeuser Lime Kiln No. 2**	527630.9	4193967.2	0.00	42.7	339	11.9	1.2
WILLK1	Weyerhaeuser Lime Kiln No. 1**	527632	4193956.5	0.00	24.4	333	11.5	1.2
WILBFB	Weyerhaeuser BFB Boiler*	527671.5	4193963.9	1.11	61	394	11.6	3.7
WILRB2	Weyerhaeuser Recovery Boiler No. 2**	527671.6	4193930.9	0.00	43.9	427	20.2	2.1
WILRB1	Weyerhaeuser Recovery Boiler No. 1**	527654	4193930.4	0.00	43.3	349	14.1	2.1
WILST1	Weyerhaeuser Smelt Tank No. 1**	527654	4193921.2	0.00	42.7	347	8.9	0.76
WILST2	Weyerhaeuser Smelt Tank No. 2**	527679.3	4193920.5	0.00	42.7	346	8.6	0.82
WILRB3	Weyerhaeuser Recovery Boiler No. 3*	527698.9	4193941.2	28.38	81.4	455	12.2	3
WILST3	Weyerhaeuser Smelt Tank No. 3*	527689.7	4193912.9	0.37	51.5	355	9.1	1.2
WILRB4	Weyerhaeuser Recovery Boiler No. 4*	527733.8	4193970.6	21.03	83.8	450	27.2	3.05
WILST4	Weyerhaeuser Smelt Tank No. 4*	527743.8	4193947.4	0.71	62.5	366	15.2	1.5
NSAPOT5	NSA Potline 5*	518509	4199183	44.49	60.96	310.93	15.386	3.9624
NSACBAKE	NSA Carbon Bake Furnace*	518676	4199943	7.37	60.96	374.82	13.44	2.7
OGRAIN07	Owensboro Grain Coal-Fired Boiler*	490317	4180659	27.03	33	430	15	1.4
CWAL03	Commonwealth Aluminum EIS 03*	512917	4200359	24.04	21	570	10	2.1
CWAL14	Commonwealth Aluminum EIS 14*	512927	4200359	1.27	31	477	13	1.7
CWAL58	Commonwealth Aluminum EIS 58*	512937	4200359	0.64	22	311	16	2.1
HENMPL01	Henderson Municipal Power*	448000	4188600	132.00	40	438	8	2.1
REIDTURB	Reid Power Turbine*	455700	4166500	54.02	33	844	16	2.7
AEP01	Rockport Power Plant*	496750	4197360	1617.32	316.46	433	12.96	19.34
IPALCO04	IPALCO Unit 4*	478000	4264300	398.07	187.45	341	31.41	6.1
ACMI01	ACMI*	519180	4198520	0.0006	15.9	644	16.8	0.67
ALAMER01	ALAMER*	519440	4198530	0.0024	20	955	7	1.2
PAVING01	Owensboro Paving*	516917	4199859	0.0080	10	436	3.4	3
SWIRE14	Southwire Melt Furnace*	518977	4198783	1.60	22.86	644	3.4	1.7
SWIRE13	Southwire Holding Furnaces*	518987	4198773	0.67	15.5	644	3.4	0.84
SWIRE21	Southwire Melt/Hold Furnaces*	518987	4198768	0.57	15.5	644	3.3	0.84
SWIRE01	Southwire Melt Furnace #1	518977	4198758	1.60	22.86	644	1.8	1.7
SWIRE02	Southwire Melt Furnace #2	518978.1	4198764.2	1.60	22.86	644	1.7	1.7
SWIRE03	Southwire Holding Furnace No. 1	518970.5	4198763.1	1.50	18	644	3.2	0.8
SWIRE04	Southwire Holding Furnace # 2	518973.7	4198771.1	0.45	18	644	2.9	0.61
NSAPOT14	NSA Potlines 1-4 Air Control Stack	518757	4199268	22.13	121.92	311	11.48	7.92
COLEMA01	Coleman Power Station Unit 1 Stack	518388.2	4201533.7	1026.29	106	447	19	4.3
COLEMA02	Coleman Power Station Unit 2 Stack	518337	4201510	1026.29	106	447	19	4.3
COLEMA03	Coleman Power Station Unit 3 Stack	518290.4	4201477.7	1040.04	106	415	19	4.3
GRNRIV01	Green River Steel	495210	4183200	7.50	38	427	5	1.9
GRNRIV02	Green River Steel	495200	4183200	30.70	38	700	1	1.9
OMU01	Owensboro Municipal Utility Unit 1	493817	4182859	1139.29	198	416	24	5.5

OMU02	Owensboro Municipal Utility Unit 2	493817	4182859	1942.00	198	416	24	5.5
ALCAN01	Alcan Aluminum	455800	4167600	48.76	24	366	10	1.2
ALCAN02	Alcan Aluminum	455700	4167700	48.76	24	366	10	1.2
ALCAN03	Alcan Aluminum	455600	4167800	48.76	24	366	10	1.2
HENMPL02	Henderson Municipal Power	448010	4188600	295.00	40	461	11	3
KUGR01	KU Green River	489200	4135000	116.90	50	310	8	4.9
KUGR03	KU Green River	489210	4135000	562.50	61	422	19	3.4
KUGR04	KU Green River	489220	4135000	726.20	75.3	422	28.4	3.1
PARAD01	TVA Paradise Power Plant	502000	4123500	953.10	182	341	16	7.9
PARAD02	TVA Paradise Power Plant	502010	4123500	953.10	182	341	16	7.9
PARAD03	TVA Paradise Power Plant	502020	4123500	7067.80	243	419	30	8.2
PARAD04	TVA Paradise Power Plant	502030	4123500	1.61	60	422	10	1.1
PARAD05	TVA Paradise Power Plant	502000	4123510	4.88	59	452	14	3.7
PARAD06	TVA Paradise Power Plant	502000	4123520	1.61	59	422	4	3.7
PARAD07	TVA Paradise Power Plant	502000	4123530	0.34	59	422	4	3.7
WILSON01	Wilson Power Plant	492909	4143649	693.86	183	326	7.62	10.4
GREEN01	Green River Power	455700	4166500	268.36	106	322	22	4.6
GREEN02	Green River Power	455710	4166500	268.36	106	322	26	4.6
REID01	Reid Power Plant	455700	4166500	546.94	76	423	9	3.9
REID02	Reid Power Plant	455710	4166500	1028.00	106	427	15	4.9
REID03	Reid Power Plant	455720	4166500	1028.00	106	427	15	4.9
RATTS01	Indiana Source	476790	4263500	197.11	91.46	411.89	9.76	3.35
IPALCO01	IPALCO, Indiana	478010	4264100	301.29	168.6	425.78	26.91	7.62
IPALCO02	IPALCO, Indiana	478000	4264160	557.76	187.5	347.44	27.62	6.71
IPALCO03	IPALCO, Indiana	478000	4264250	610.80	187.5	338.56	31.19	6.71
IPALCO07	IPALCO, Indiana	477980	4264070	460.30	189.33	327.44	9.66	8.99
BROWN01	SIGECO Brown, Indiana	437090	4195280	177.68	151.52	327.44	27.52	4.27
BROWN02	SIGECO Brown, Indiana	437600	4195180	113.50	151.52	321.89	29.71	4.27
ALCOA102	Alcoa, Indiana	470990	4196630	37.90	19.82	349.67	77.84	0.76
ALCOA161	Alcoa, Indiana	470990	4196630	100.58	12.5	298	11.32	0.61
ALCOA404	Alcoa, Indiana	471000	4196560	0.15	17.38	319.11	14.53	0.38
CULLEY02	Culley, Indiana	471300	4195600	42.41	84.15	441.33	17.1	3.99
CULLEY03	Culley, Indiana	471270	4195570	22.86	152.13	431.89	28.81	4.42
CULLEY04	Culley, Indiana	471400	4195580	80.76	152.13	326.33	18.6	6.1
WARCK01	WARCK, Indiana Source	470770	4196170	2119.14	121.95	416.33	6.19	4.67
WARCK02	WARCK, Indiana Source	470670	4196170	1096.15	152.44	410.78	9.24	4.42
WAUPAC01	Waupaca Foundry	520300	4204100	0.50	54.88	310.78	18.35	4.88
WAUPAC09	Waupaca Foundry	520310	4204100	2.52	42.68	433	2.18	4.7
*	Increment-Consuming Source							
**	Increment-Expanding Source (retired)							

Below are lists of sources/emission units that were involved in the screening threshold analysis of nearby sources of sulfur dioxide for this PSD permit revision.

Screening Threshold Analysis for Weyerhaeuser Company
Assessment of Nearby Sources of SO2

				Distance	Is Source	Distance		
			Emission	from	Within	from		Include
	UTM Coordinates		Rate	Willamett	Willamette's	Willamette's		Facility in
Facility	East (m)	North (m)	(tons/yr)	(km)	SIA?	SIA (m)	Q > 20D?	Analysis?
NSA	518757	4199268	7629	10.0	Yes	NA	NA	Yes

Big Rivers Coleman	518292	4201507	107505	11.8	Yes	NA	NA	Yes
MAGO01	562500	4193600	158	35.4	No	29.4	No	No
MAGHAR01	542500	4180100	158	20.5	No	14.5	No	No
BARTON01	492100	4181100	226	37.2	No	31.2	No	No
BURELE01	487300	4174200	48	44.3	No	38.3	No	No
DAVMID01	491600	4180800	0.01	37.8	No	31.8	No	No
FIBER01	495500	4184500	85	32.9	No	26.9	No	No
Green River Steel	495200	4183200	1328	33.6	No	27.6	Yes	Yes
LIPTON	493000	4180100	333	36.7	No	30.7	No	No
Owensboro Grain	490317	4180659	940	39.0	No	33.0	Yes	Yes
Owensboro Grain Edible Oils	487300	4181800	95	41.5	No	35.5	No	No
Owensboro Municipal Utility	493817	4182859	107115	35.0	No	29.0	Yes	Yes
ACMI01	519180	4198520	0.02	9.3	Yes	NA	NA	Yes
ALAMER01	519440	4198530	0.1	9.1	Yes	NA	NA	Yes
Commonwealth Aluminum	512917	4200359	902	15.7	No	9.7	Yes	Yes
Dali Tile	507517	4197659	2.2	20.0	No	14.0	No	No
Owensboro Paving	516917	4199859	0.3	11.9	Yes	NA	NA	Yes
Southwire Company	518830	4198850	0.4	9.7	Yes	NA	NA	Yes
WSIND01	519417	4191159	0.1	8.1	Yes	NA	NA	Yes
Alcan Aluminum	455600	4167800	5085	76.0	No	70.0	Yes	Yes
HENMPL	448000	4188600	14844	79.3	No	73.3	Yes	Yes
PERDUE	487600	4183300	37	40.8	No	34.8	No	No
Arch Chemical	577000	4206000	294	51.4	No	45.4	No	No
KUGR	489200	4135000	48863	69.9	No	63.9	Yes	Yes
TVA Paradise	502000	4123500	312257	74.5	No	68.5	Yes	Yes
Big Rivers Wilson	492909	4143609	24121	60.6	No	54.6	Yes	Yes
GREEN	455700	4166500	18658	76.4	No	70.4	Yes	Yes
REID	455700	4166500	90486	76.4	No	70.4	Yes	Yes
JASPER	507500	4250000	1044	59.6	No	53.6	No	No
KIMBAL01	505900	4248600	23	58.9	No	52.9	No	No
Waupaca Foundry	520300	4204100	88	12.4	Yes	NA	NA	Yes
RATTS01	476790	4263500	6852	86.1	No	80.1	Yes	Yes
IPALCO	478000	4264300	67098	86.0	No	80.0	Yes	Yes
SIGECO Brown	437600	4195180	10122	89.5	No	83.5	Yes	Yes
Rockport Power	496750	4197360	56223	30.6	No	24.6	Yes	Yes
ALCOA	470990	4196560	3540	56.2	No	50.2	Yes	Yes
CULLEY	471300	4195600	5077	55.8	No	49.8	Yes	Yes
WARCK	470770	4196170	111773	56.4	No	50.4	Yes	Yes

A. Preapplication Analysis

Regulation 401 KAR 51:017, Section 12 requires a PSD permit application to include an analysis of ambient air quality in the area that the modification would affect. However, Section 8(8) allows the Cabinet to exempt a modification from the requirements of Section 12 if it can be demonstrated that the air quality impacts are less than the significant impact levels in Section 24. Please refer to Table 6. The net change in emissions due to the mill expansion were modeled using CTSCREEN and this

modeling data provided by the source. Please refer to Table 7. Table 6 and 7 demonstrate that the impacts due to the proposed modification will be less than the significant impact levels. Therefore, preconstruction ambient air quality monitoring was not required.

Table 6, Significant Air Quality Impact.

Pollutant	Air Quality Level	Averaging Time
Nitrogen dioxide	14 ug/m^3	annual average
Sulfur dioxide	13 ug/m^3	24-hour average

Table 7, Ambient air quality modeling impacts for proposed permit revision

Receptor (SO2)	Maximum annual impact, ug/m^3	Maximum 24 hour impact, ug/m^3	Maximum 3 hour impact, ug/m^3
Hill A	2.25	11.26	52.5
Hill B	2.07	10.37	48.4
Hill K	2.18	10.9	51.0
Receptor (NOx)			
Hill A	12.45	NA	NA
Hill B	12.61	NA	NA

Note: This modeling reflects all major and minor sources in the area.

B. Increment Consumption and NAAQS Analysis

In order to perform increment consumption and NAAQS modeling for SO_2 emissions, it is necessary to define Weyerhaeuser's significant impact area (SIA). The SIA is the area represented by a circle with a radius equal to the distance from the source to the furthest receptor at which a significant ambient concentration is predicted. A significant ambient concentration for SO_2 is defined as any annual value of 1 ug/m^3 or greater, a 24-hour value of 5 ug/m^3 or greater, and a 3-hour value of 25 ug/m^3 or greater. Nitrogen oxides (NOx) increment consumption modeling was not performed since a Significant Impact Area (SIA) was not triggered by Weyerhaeuser's sources. That is, all maximum annual impacts were predicted to be less than 1 ug/m3 by the ISCST3 model. If no impacts are above 1 ug/m3, then Weyerhaeuser cannot cause or contribute to a violation of the NAAQS by definition.

Weyerhaeuser's SIA modeling was conducted using a polar receptor grid with 36 radials at 10-degree increments and a ring spacing of 500 meters, out to a distance of 21 kilometers from Willamette's sources. The 24-hour, and 3-hour averaging periods were evaluated. The results of the SIA modeling are depicted in the SIA Table, below. For the 3-hour averaging period, the maximum distance to a receptor with a significant impact is 10.0 km, as shown in the SIA Table. This Table also shows that the maximum distance to a 24-hour significant impact is 14.1 km. The larger SIA, predicted for the 24-hour averaging time, was chosen for the modeling study to allow both 3-hour and 24-hour averaging periods to be assessed within the same modeling runs.

Table 8, Significant Impact Area (SIA) Determination

Model Year	Maximum Distances to Significant Impact Receptors, km, 3-Hour Averaging Period	Maximum Distances to Significant Impact Receptors, km, 24-Hour Averaging Period
1990	5.7	8.7
1991	6.0	9.8

1992	10.0	14.1
1993	8.4	9.5
1994	5.7	8.2

Table 9, Ambient air quality standards

CONTAMINANT	PRIMARY STANDARD	SECONDARY STANDARD
Sulfur Oxides (Sulfur Dioxide) $\mu g/m^3$ Annual Arithmetic Mean, not to exceed Maximum Twenty-Four-Hour Average Maximum Three-Hour Average	80 (0.03 ppm) 365 (0.14 ppm)+ --	 -- 1300 (0.50 ppm)+
Nitrogen Dioxide - $\mu g/m^3$ Annual Arithmetic Mean, not to exceed	100 (0.05 ppm)	Same as primary

+This average is not to be exceeded more than once per year.

Table 10, Results of NAAQS Total impact modeling, 24-hour average

Met Data Year	Maximum (2^{nd}) High 24-hr Impact, ug/m^3	Background Concentration, ug/m^3	Total Ambient Impact ug/m^3
1990	268.17	26.5	294.67
1991	281.84	26.5	308.34
1992	234.85	26.5	263.35
1993	294.44	26.5	320.94
1994	262.59	26.5	289.09

Table 11, Results of NAAQS Total impact modeling, 3-hour average

Met Data Year	Maximum (2^{nd}) High 3-hr Impact, ug/m^3	Background Concentration, ug/m^3	Total Ambient Impact ug/m^3
1990	829.14	325.5	1154.64
1991	824.39	325.5	1149.89
1992	949.69	325.5	12785.19

1993	948.98	325.5	1274.48
1994	852.74	325.5	1178.24

Regulation 401 KAR 51:017, Section 10, requires the applicant to demonstrate that the proposed emissions increases will not cause or contribute to air pollution in violation of:
(1) Any national ambient air quality standard (NAAQS); or
(2) Any applicable maximum allowable increases over the baseline concentration.

Pursuant to Item 1 above, Tables 10 and 11 reflect the ambient air quality modeling total impacts for the proposed permit revision, and Table 9 provides the primary and secondary ambient air quality standards. As can be seen from the above tables, no ambient air quality standards will be exceeded.

Table 12, Ambient air increments, Class II area

Met Data Year	Maximum 24-hr Impact, ug/m^3	Maximum 3-hr Impact, ug/m^3	24-Hour SO2 Allowable Increment, ug/m^3	3-Hour SO2 Allowable Increment, ug/m^3
1990	45.49	205.12	91	512
1991	52.35	205.53	91	512
1992	48.41	202.61	91	512
1993	43.72	202.21	91	512
1994	64.26	237.3	91	512

Pursuant to Item 2 above, Table 12 reflects the increment consumption from all increment consuming sources in the area, including all facilities at Weyerhaeuser, and the source increment consumption will not exceed the maximum allowable increase permitted by the above Regulation. The source's consultant, Kenvirons Incorporated, has indicated that sulfur dioxide annual modeling was not performed since Weyerhaeuser's contribution to the annual increment was determined to be insignificant (i.e. less than 1 ug/m^3 for all years).

VI. CLASS I AND NONATTAINMENT AREA IMPACT ANALYSIS

The nearest Class I area is Mammoth Cave, Kentucky, which is approximately 79.5 kilometers to the southeast. Based on ISCST3 modeling analysis, the concentration of sulfur dioxide is estimated to be less than the significant impacts for a Class I area, at the park boundary. A significant Class I area impact is any 24-hour impact above 1 ug/m3 and the allowable increment would be 5 ug/m^3. Please refer to Table 13. Weyerhaeuser is <u>not</u> in a Class I significant impact area with regard to increment consumption. The information in the Table below is provided to show <u>no</u> problem with the SO2 impact concentrations at the National Park.

Table 13, Ambient air increments, Class I area

Met Data Year	Maximum 24-hr Impact, ug/m^3	24-Hour SO2 Allowable Increment, ug/m^3
1990	0.16	5.0
1991	0.18	5.0
1992	0.16	5.0
1993	0.34	5.0
1994	0.21	5.0

VII. ADDITIONAL IMPACT ANALYSIS

Kentucky Regulation 401 KAR 51:017, Section 10, require a visibility analysis for a source that has a potential to impact on a Class 1 area.

Based on previous Level l visibility screening analysis, performed for the applicant, the modification is predicted to have low visibility impairment potential for Mammoth Cave.

The adverse impacts on soils, and vegetation and population growth due to this PSD permit revision are expected to be minimal.

VIII. STACK HEIGHT CONSIDERATIONS

The applicant has evaluated this modification for good engineering practice stack height. Section 123 of the Clean Air Act Amendments of l977 (40 CFR 51.1) and Kentucky Regulation 401 KAR 50:042 require that stack heights shall not exceed good engineering practice (GEP) and that the stack height is sufficient to insure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies, and wakes which may be created by the source itself, nearby buildings, and terrain features. GEP is defined by the following equation:

$$Hg = H + 1.5L$$

Hg =good engineering practice stack height, measured from the ground-level elevation at the base of the stack

H =height of nearby structure(s) measured from the ground-level elevation at the base of the stack

L =Lesser dimension, height or projected width, of nearby structure(s)

GEP stack height was evaluated by the source, and is accounted for through the air quality modeling analysis.

IX. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This review and analysis demonstrates that (1) no change in ambient air quality will be observed due to Weyerhaeuser's requested permit revisions for the NCG/SOG Incinerator,
(2) Weyerhaeuser will not cause or contribute to any violation of the annual, 24-hour, or 3-hour PSD increment standard for SO_2, and (3) Willamette will not cause or contribute to any violation of the annual, 24-hour, or 3-hour NAAQS for sulfur dioxide.

OTHER CHANGES:

On November 25, 2002 Weyerhaeuser requested a change in the proposed draft SO_2 pound per mmBTU limit for the Biomass Fuel Boiler (Unit 42 – BPM BFB Boiler). The current SO_2 limit of 0.015 lbs/mmBTU was derived on the basis of using all permitted fuels at the boiler's maximum operating rate, which included a significant amount of natural gas usage. However, Weyerhaeuser was concerned that during periods when only wood is burned that the current SO_2 limit would restrict, and perhaps even eliminate the burning of clarifier sludge and low sulfur fuel oil. This is because, although all the permitted fuels are low sulfur fuels, the sulfur content in wood, clarifier sludge and fuel oil is higher than natural gas. Therefore, Weyerhaeuser requested that the SO_2 emission limit be changed to 0.033 lbs/mmBTU. In addition, Weyerhaeuser has requested that the

standby fuel oil for this boiler be identified as low sulfur oil with a sulfur content of <0.5 weight percent.

These changes do not trigger PSD, however the BFB Boiler is subject to NSPS and BACT controls. The requested change was reviewed and determined to still meet the 40 CFR 60 Subpart Db requirements. Also, with the current restriction on the amount of fuel oil burned along with the use of low sulfur oil, the BFB Boiler SO_2 NSPS requirements are now limited to the fuel sulfur content monitoring requirements of Subpart Db. The BACT analysis was also reviewed by comparing the 0.033lbs/mmBTU SO_2 limit to recent BACT determinations found in the EPA BACT/LAER Clearinghouse database. The new SO_2 limit is similar to the lowest BACT established permit limit for waste wood or biomass boilers that are burning fuels other than clean wood.

The Division proposes to approve the requested change in fuel oil sulfur content and SO_2 emission limit for the Biomass Fuel Boiler (Unit 42 – BPM BFB Boiler).

APPLICABLE REGULATIONS:

Weyerhaeuser is a major source of emissions of PM_{10}, SO_2, NO_x, CO, VOC and Hazardous Air Pollutants (HAPs). The following emission units are subject to NSPS Subpart BB Standards of performance for Kraft Pulp Mills: the Continuous Digester (EU 14), the Multiple Effect Evaporator (EU 22), No. 3 Recovery Boiler (EU 27), No. 3 Smelt Tank (EU 28), No. 4 Recovery Boiler (EU 29), No. 4 Smelt Tank (EU 30), No. 2 Lime Kiln (EU 35), No. 3 Lime Kiln (EU 36), and the NCG/SOG Incinerator (EU 40). These sources were constructed after the NSPS trigger date of September 24, 1976. These sources are also subject to Kentucky Regulation 401 KAR 59:080.

Hogged Fuel Boiler No. 2 (EU 7) is subject to the NSPS Subpart D fossil fuel fired steam-generating units. However, since the closure of the Medium Mill this standby boiler will now only burn natural gas. The KMM Package Boiler (EU 6) and BFB Boiler (EU 42) are subject to NSPS Subpart Db Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. The BPM Power Boiler (EU 46) was built before the NSPS trigger date of August 17, 1971, and is, therefore, subject to Kentucky's 401 KAR 61:015 (Existing Heat Exchangers). The KMM Package Boiler and the BFB Boiler are subject to Kentucky's 401 KAR 59:015 (New Indirect Heat Exchangers).

The Methanol Storage Tank (EU 48), the Bleached Pulp HD Storage Tanks (EU 50), and the K-2 Paper Machine Stock Preparation Tanks (EU 53) are subject to the NSPS Subpart Kb Standards of Performance for Volatile Organic Liquid Storage Vessels. However, none of these tanks store an organic liquid with a maximum true vapor pressure above the emissions control trigger for the NSPS. Therefore, only the recordkeeping provisions of the NSPS apply to these sources.

Since the Hawesville Operations is a major source of HAP emissions, the 40 CFR 63, Subpart S pulp and paper MACT regulations apply to certain facilities at the mills. All emissions of low-volume high-concentration (LVHC) NCGs and high-volume low-concentration (HVLC) NCGs are collected and incinerated in either the NCG/SOG Incinerator or the Lime Kilns in accordance with the MACT requirements. All affected emission points within the No. 2 Bleach Mill, the No. 3 Bleach Mill, and the Chlorine Dioxide Generator are collected and controlled by a central Bleach Plant Scrubber (Emission Point B-100) in accordance with the MACT rules

Federal regulation 40 CFR 63, Subpart MM, pulp and paper MACT regulations apply to certain facilities at the mills. These include each recovery furnace, lime kiln, and smelt tank.

Please refer to the Title V permit for the specific regulations that are applicable to each emission unit.

APPLICABLE REGULATIONS:

Please note that 401 KAR 60:005 and 63:002 incorporate by reference the federal regulations 40 CFR 60 and 40 CFR 63 for criteria and hazardous air pollutants (HAPs), respectively.
401 KAR 59:080, *New Kraft (sulfate) pulp mills constructed after to April 9, 1972*
401 KAR 63:060, *List of hazardous air pollutants, petitions process, lesser quantity designations, and source category list*
40 CFR 63 Subpart S, *National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry*
401 KAR 60:005, 40 CFR Subpart 60, *Standards of performance for new stationary sources*
40 CFR 60 Subpart BB, *Standards of Performance for Kraft Pulp Mills*
401 KAR 59:015 *New indirect heat exchangers constructed after April 9, 1972*, applies to the particulate, sulfur dioxide and visible emissions.
401 KAR 60:005 (40 CFR Subpart Db) *Standards of Performance for Industrial-Commercial-Institutional steam Generating Units* constructed prior to 1984
401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 60:005 (40 CFR 60 Subpart Kb) *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984*
40 CFR 63 Subpart MM, *National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills*
401 KAR 63:010, *Fugitive emissions*
401 KAR 59:010, *new process operations*
401 KAR 63:020, *Potentially hazardous matter or toxic substances*
401 KAR 63:021, *Existing sources emitting toxic air pollutants*

REGULATIONS NOT APPLICABLE:

401 KAR 61:050 *Standards of Performance of Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and prior to May 19, 1978* does not apply because no petroleum liquids are stored or the tanks were constructed prior to the above dates.
401 KAR 59:050 *New storage vessels for petroleum liquids* constructed on or after April 9, 1972 and prior to July 24, 1984 with a storage capacity less than or equal to 151,400 liters (40,000 gallons), and to each affected facility with a storage capacity less than 40,000 liters (10,567 gallons) constructed on or after July 24, 1984, which is located in an urban county designated nonattainment for ozone under 401 KAR 51:010 or in any other county and is a part of a major source of volatile organic compounds.
401 KAR 60:005 (40 CFR Subpart K) *Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978.*
401 KAR 60:005 (40 CFR 60 Subpart Ka) *Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and prior to July 23, 1984*
401 KAR 61:025, *Existing Kraft (sulfate) pulp mills constructed prior to April 9, 1972*
401 KAR 60:005 (40 CFR 60 Subpart Da) *Standards of Performance for Electric Utility*

Steam Generating Units for Which Construction is Commenced After September 18, 1978. This Regulation will not apply since all electric power generated will be used by the source.
401 KAR 60:005 (40 CFR Subpart Dc) *Standards of Performance for Industrial-Commercial-Institutional steam Generating Units* since it was constructed prior to 6/9/89.
401 KAR 61:015, *Existing indirect heat exchangers*

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.